METHOD AND APPARATUS FOR REMOVING CODE ALIASES WHEN USING SHORT SYNCHRONIZATION CODES

ABSTRACT OF THE DISCLOSURE

A method and apparatus for estimating a communication channel impulse response $h(t)$ is disclosed. The method comprises the steps of generating a data sequence d_i having a constrained portion Cd_i associated with at least two codes w_0, w_1, wherein a correlation $A_{code}(k)$ of the constrained portion Cd_i with one of the codes w_0, w_1 is characterized by a maximum value at $k = 0$ less than maximum values at $k \neq 0$; generating a chip sequence c_j having a chip period T_c as the data sequence d_i spread by a spreading sequence S_i of length N; generating $co_m(t) = co(t + mNT_c)$ for $m = 0,1,\Lambda\ ,M$ by correlating a received signal $r(t)$ with the spreading sequence S_i, wherein the received signal $r(t)$ comprises the chip sequence c_j applied to the communication channel; and generating an estimated communication channel impulse response $\hat{h}_M(t)$ as a combination of $co_m(t)$ and d_m for $m = 0,1,\Lambda\ ,M$.